

WHAT IS CLAIMED IS:

1. An apparatus comprising:
at least one biocompatible body, the body sized and shaped to be implanted within a subject to contact tissue, at least a portion of the body including a material having at least one physical property that changes in response to a physiological condition, the change in the physical property detectable using acoustic energy.
2. The apparatus of claim 1, in which the change in the physical property includes a change in size.
3. The apparatus of claim 1, in which the change in the physical property includes a change in stiffness.
4. The apparatus of claim 1, in which the change in the physical property includes a change in acoustic reflection from the body.
5. The apparatus of claim 1, in which the change in the physical property includes a change in acoustic transmission by the body.
6. The apparatus of claim 1, in which the change in the physical property includes a change in acoustic attenuation by the body.
7. The apparatus of claim 1, in which the body is sized and shaped to be introduced within a myocardium of a subject.
8. The apparatus of claim 1, in which the body includes a sphere.
9. The apparatus of claim 1, in which the body comprises at least a portion of a catheter.

10. The apparatus of claim 1, further comprising an acoustic transmitter to provide acoustic energy to the body and the tissue.
11. The apparatus of claim 10, further comprising an acoustic receiver to receive acoustic energy from at least one of the body and the tissue to detect the change in the physical property of the body in response to the change in the physiological condition of the subject.
12. The apparatus of claim 11, further comprising a signal processor circuit coupled to the acoustic receiver.
13. The apparatus of claim 12, further comprising a user interface, coupled to the signal processor circuit, the user interface comprising a display that includes at least one indicator that includes information about at least one of the change in the physiological condition and the change in the physical property.
14. The apparatus of claim 13, in which the user interface includes an external programmer.
15. The apparatus of claim 13, in which the user interface includes a computer that is communicatively coupled to the signal processor circuit at least in part over a computer network or telephony network.
16. The apparatus of claim 1, in which the at least one biocompatible body is pH sensitive.
17. The apparatus of claim 1, in which the at least one biocompatible body is ion selective.

18. A system comprising:
a plurality of biocompatible spheres, each sphere sized and shaped to be disposed within a myocardium of a subject, each sphere including at least one physical property that changes in response to a physiological condition of the subject;
an acoustic transmitter, to provide energy to the spheres and the myocardium; and
an acoustic receiver, to receive energy from at least one of the spheres and the myocardium.

19. A method comprising:
introducing at least one body into contact with a tissue, wherein the body includes at least one physical property that changes in response to a physiological change associated with the tissue;
transmitting acoustic energy to the body and the tissue;
receiving transmitted acoustic energy for detecting the change in the physical property of the body; and
detecting the physiological change by detecting the change in the physical property of the body.

20. The method of claim **19**, in which the introducing the at least one body includes introducing at least one pH sensitive body.

21. The method of claim **19**, in which the introducing at least one body includes introducing at least one ion sensitive body.

22. The method of claim **19**, in which the physical property that changes is a size of the body.

- 23.** The method of claim 19, in which the physical property that changes is a stiffness of the body.
- 24.** The method of claim 19, in which the physical property that changes is an acoustic reflection of the body.
- 25.** The method of claim 19, in which the physical property that changes is an acoustic transmission of the body.
- 26.** The method of claim 19, in which the physical property that changes is an acoustic attenuation of the body.
- 27.** The method of claim 19, in which the detecting the change in the physical property of the body comprises detecting an acoustic reflection of the body.
- 28.** The method of claim 19, in which the detecting the change in the physical property of the body comprises detecting an acoustic transmission of the body.
- 29.** The method of claim 19, in which the detecting the change in the physical property of the body comprises detecting an acoustic attenuation of the body.
- 30.** The method of claim 19, in which the introducing the at least one body includes introducing at least one sphere.
- 31.** The method of claim 19, in which the introducing the at least one body includes introducing a catheter.
- 32.** The method of claim 19, in which the introducing the at least one body includes introducing the at least one body into a myocardium.

33. The method of claim 19, in which the introducing the at least one body includes introducing the at least one body into at least one coronary artery.
34. The method of claim 19, in which the detecting the physiological change using the detected change in the physical property of the body comprises detecting ischemia using the detected change in the physical property of the body.
35. The method of claim 19, in which the detecting the physiological change using the detected change in the physical property of the body comprises detecting blood flow using the detected change in the physical property of the body.
36. The method of claim 19, further comprising introducing a catheter for at least one of the transmitting the acoustic and the receiving the acoustic energy.